

Name: _____

Due Date: 2nd Day of School

MATH REVIEW PACKET FOR STUDENTS ENTERING ALGEBRA I

All of the information in this packet is REVIEW. Every student entering Algebra I is EXPECTED to know and understand this information. Students who do not have a thorough understanding of the content below will need to get comfortable with the material. Use the descriptions and examples to refresh your memory.

SHOW YOUR WORK for each problem.

At the start of next school year's mathematics course, this completed packet is to be turned in and a test will be given to assess the student's knowledge of the covered topics. **NO CALCULATORS ALLOWED** on the test, so you should attempt to complete this packet without the use of a calculator.

TOPICS IN THIS REVIEW:

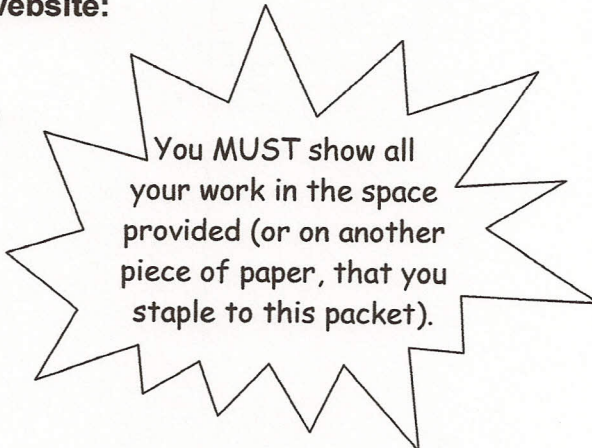
- I. Operations with Decimals
- II. Operations with Fractions
- III. Translating Words to Expressions
- IV. Integers and Exponents
- V. Evaluating Expressions and Order of Operations
- VI. Solving 1- and 2-Step Linear Equations
- VII. The Distributive Property and Combining Like Terms

If additional help is needed long onto the following website:

<http://my.hrw.com>

Username: shelp4

Password: t7e9x (password is case sensitive)



You **MUST** show all your work in the space provided (or on another piece of paper, that you staple to this packet).

Please visit the High School Math Web Page for additional copies of the review packet, the review packet answer key, and additional math resources.

The address is: <http://umhsmathwikispaces.com/>

Enjoy your summer!

PART 1: OPERATIONS WITH DECIMALS.

Adding and Subtracting Decimals

STEP 1: Align the decimal points.

STEP 2: Add zeros as place holders (if necessary).

STEP 3: Add/Subtract.

EX: $4.761 + 3.41$

$$\begin{array}{r} 1 \\ 4.761 \\ + 3.410 \\ \hline 8.171 \end{array}$$

EX: $5.0 - 0.003$

$$\begin{array}{r} 4.99 \\ 5.000 \\ - 0.003 \\ \hline 4.997 \end{array}$$

Multiplying Decimals

STEP 1: Multiply as you normally would.

STEP 2: Count the total # of decimal places.

STEP 3: Your final answer should have as many decimal places as you counted in Step 2.

EX:

$$\begin{array}{r} 1.3 \\ 7.5 \\ \times 0.37 \\ \hline 525 \\ 225 \\ \hline 2.775 \end{array}$$

→ 1 decimal place
→ 2 decimal places
→ Total of 3 decimal places

Dividing Decimals

STEP 1: If necessary, move the decimal point so that the divisor is a whole #. Make sure you move the decimal point the same # of places in the dividend.

STEP 2: Complete the normal long division, adding zeros to the dividend as needed.

STEP 3: Place the decimal point in the answer (quotient) directly above the decimal point in the dividend.

EX:

$0.5 \overline{)0.75}$ → Move decimal one place

$$\begin{array}{r} 1.5 \\ 5 \overline{)7.5} \\ \underline{5} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

→ Divide

You MUST
show all
your work.

TRY THESE: Remember to show your work.

1. $5.95 - 4.96$

2. $4.44 + 12.12$

3. $81.85 - 9.6$

4. $20.11 + 8.284$

5. $20.11 - 8.284$

6. 7.5×4.2

7. 26.3×2.41

8. $2 \overline{)0.516}$

9. $11.3 \overline{)51.98}$

10. $42.66 \div 7.9$

PART 2: OPERATIONS WITH FRACTIONS.

Re-Writing Fractions with Different Denominators

STEP 1: Find the Least Common Denominator (the smallest # that both/all denominators divide evenly into).

STEP 2: Determine what you multiplied the first denominator by to get the LCD and multiply the numerator by that same number.

STEP 3: Repeat for the other fractions.

EX: Rewrite $\frac{3}{4}$ and $\frac{1}{6}$ so they have the same denominator.

*** Currently the denominators are 4 and 6, so the LCD is 12.*

$$\frac{3}{4} \cdot \frac{3}{3} = \frac{9}{12}$$

$$\frac{1}{6} \cdot \frac{2}{2} = \frac{2}{12}$$

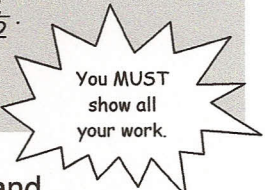
Comparing Fractions

STEP 1: Rewrite the fractions so that they have the same denominator.

STEP 2: Look at the numerator. The fraction with the larger numerator is the biggest fraction.

EX: Which is larger, $\frac{3}{4}$ or $\frac{1}{6}$?

Answer, $\frac{3}{4}$ is larger because $\frac{9}{12} > \frac{2}{12}$.



You **MUST**
show all
your work.

TRY THESE: Compare each fraction by writing $>$, $<$, or $=$. Make sure that you write and show your equivalent fractions that have the same denominator.

11. $\frac{2}{3}$ _____ $\frac{14}{21}$

12. $\frac{2}{3}$ _____ $\frac{3}{4}$

13. $\frac{3}{5}$ _____ $\frac{12}{25}$

14. $\frac{7}{8}$ _____ $\frac{5}{6}$

TRY THESE: Write each fraction in simplest form (reduce the fraction).

15. $\frac{30}{40}$

16. $\frac{6}{18}$

17. $\frac{16}{20}$

18. $\frac{20}{28}$

Adding and Subtracting Fractions

STEP 1: Rewrite each of the original fractions so that they have a common denominator.

STEP 2: Add/subtract the numerators.

STEP 3: Keep the denominator.

STEP 4: Reduce the fraction if possible.

EX: $\frac{5}{6} + \frac{3}{8} = \frac{20}{24} + \frac{9}{24} = \frac{29}{24}$ or $1\frac{5}{24}$

TRY THESE: Add/subtract. Show your work.

19. $\frac{7}{15} - \frac{1}{6} =$

20. $\frac{1}{4} + \frac{3}{8} =$

21. $\frac{11}{12} + \frac{5}{8} =$

22. $\frac{7}{10} - \frac{3}{8} =$

Multiplying Fractions

STEP 1: Multiply the numerators.

STEP 2: Multiply the denominators.

STEP 3: Reduce the fraction if possible.

EX: $\frac{7}{8} \times \frac{4}{5} = \frac{28}{40} = \frac{14}{20} = \frac{7}{10}$

** If it's possible to reduce the fractions before you multiply, go for it!

Dividing Fractions

To divide fractions, simply
MULTIPLY BY THE RECIPROCAL!!!

EX: $\frac{3}{4} \div \frac{2}{3} =$

Rewrite and multiply: $\frac{3}{4} \cdot \frac{3}{2} = \frac{9}{8}$

TRY THESE: Multiply or divide. Show your work.

23. $\frac{1}{2} \times \frac{4}{7} =$

24. $\frac{2}{5} \times \frac{6}{7} =$

25. $\frac{7}{12} \div \frac{1}{2} =$

26. $\frac{5}{9} \div \frac{10}{11} =$

27. $\frac{2}{6} \times \frac{3}{8} =$

28. $\frac{2}{9} \div \frac{6}{7} =$

29. $\frac{4}{9} \times \frac{3}{16} =$

30. $\frac{5}{6} \div 3 =$

PART 3: TRANSLATING WORDS INTO EXPRESSIONS.

Write the algebraic expression for each phrase.

31. The sum of three and a number

32. Three more than twice a number

33. Five less than a number

34. Four times the quantity of seven less than a number

35. The quotient of six and a number

36. Twelve minus five times a number

PART 4: INTEGERS AND EXPONENTS.

Adding Integers

- When adding two integers with the SAME SIGN, you add the absolute value of the numbers and keep the sign.
- When adding two integers with DIFFERENT SIGNS, you subtract the absolute value of each and keep the sign of the number with the greater absolute value.

EX: $-5 + -3 = (5 + 3) = 8$... answer is -8 b/c both of the original #s were negative

EX: $-6 + 8 = (8 - 6) = 2$... answer is 2 because 8 is bigger than 6 and 8 was positive

EX: $5 + (-15) = (15 - 5) = 10$... answer is -10 b/c 15 is bigger than 5 and 15 was negative

Subtracting Integers → When subtracting integers, simply ADD the OPPOSITE.

EX: $-3 - 5 = -3 + -5 = -8$

EX: $5 - 7 = 5 + -7 = -2$

EX: $2 - (-5) = 2 + 5 = 7$

Multiplying and Dividing Integers

- * Positive x Positive = Positive
- * Negative x Negative = Positive
- * Positive x Negative = Negative

- * Positive ÷ Positive = Positive
- * Negative ÷ Negative = Positive
- * Positive ÷ Negative = Negative

Exponents represent repeated multiplication.

EX: $3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$

Perform the indicated operation without using a calculator.

37. $-12 + 15 =$

38. $16 + (-3) =$

39. $-2 + (-6) =$

40. $-5 - 4 =$

41. $8 - (-12) =$

42. $(-12)(-3) =$

43. $(3)(-2)(4) =$

44. $\frac{-15}{-5} =$

45. $\frac{-16}{2} =$

46. $\frac{(-3)(-4)}{6} =$

Rewrite and simplify.

47. $2^5 =$

48. $(-3)^2 =$

49. $-4^4 =$

PART 5: ORDER OF OPERATIONS AND EVALUATING EXPRESSIONS.

**** When you have more than one operation in a math problem, you must solve it following the correct ORDER OF OPERATIONS.**

PEMDAS

Parentheses

Exponents

Multiplication/Division
from left to right

Addition/Subtraction
from left to right

You **MUST**
show all
your work.

Simplify.

50. $15 - 2 \cdot 3 + 1$

51. $12 - 3^2 + 10 \div 2$

52. $\frac{25 + 10 - 2^3}{3^2 - 6}$

53. $(3^2 - 4 \cdot 5) + 6$

54. $-3\sqrt{18 - 2}$

55. $3(4^2 + 8 \div (-2))$

Evaluate each expression for $x = 3$ and $y = 2$.

56. $2x + y$

57. $\frac{9}{x} + 5y$

58. $x^2 + 4x$

PART 6: SOLVING 1-STEP AND 2-STEP EQUATIONS.

Solve.

59. $6x = -30$

60. $x - 3 = 10$

61. $6x - 3 = 9$

62. $\frac{x}{2} + 5 = 8$

63. $6 - 5x = 21$

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show all
your work.

PART 7: THE DISTRIBUTIVE PROPERTY AND COMBINING LIKE TERMS.

Simplify by distributing and combining like terms.

64. $3x + 7 + 5x + x + 1$

65. $5(2x + 6)$

66. $-2(3x - 4)$

67. $3x + 2(5x - 7)$